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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/764,919	01/17/2001	Tara Jean Rybnicek	IMT-MagMotor	8182
7590	02/18/2004		EXAMINER	
JAQUELIN K. SPONG 16075 OVERLOOK DRIVE LOS GATOS, CA 95030			MULLINS, BURTON S	
			ART UNIT	PAPER NUMBER
			2834	
DATE MAILED: 02/18/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

KD

Office Action Summary**Application No.**

09/764,919

Applicant(s)

RYBNICEK ET AL.

Examiner

Burton S. Mullins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-6 is/are rejected.
- 7) ☒ Claim(s) 2 and 7-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boon et al. (US 4,992,685) in view of Allen (US 5,909,069). Boon teaches an electromechanical actuator including: a magnetic core 2 having end faces 3-5 separated by an air gap (Fig.1); a pivotably mounted driven member (armature 11) moving in an arc less than 360 degrees and attached to a stationary pivot point (motor shaft 12); a protruding magnetic tab (magnetic pole element 13) fixed to one end of the pivotably mounted driven member 11, the tab 13 comprising magnetic material and disposed to interact with the gap field over a portion of its arc of rotation; means for supporting the pivotally mounted driven member (i.e., shaft 12), said means providing the pivot point for angular movement of the member, and allowing the tab of the member to move through the vicinity of the gap field (Fig.1); and a coil 16/17 of electrical conductor coupled to the fixed magnetic core 2 to provide magnetic flux therethrough when the coil is supplied with electrical current, such that a magnetic field arises in the gap formed in the core which can impart motion to the pivotably mounted driven member by interaction of the gap field with the magnetic protruding tab on said member (abstract). While the actuator core inherently comprises a ferromagnetic material (for flux transfer), Boon differs in that he does not teach a micro-actuator, per se, with the core comprising a ferromagnetic material deposited onto a substrate top surface.

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Allen teaches a planar, variable reluctance electromagnetic motor manufactured on a micro-scale. Allen's motor is used to drive various microstructure applications, including micropumps, which demand comparably sized micromotors to drive them (c.1, lines 25-33). Allen's method involves providing a substrate 18, forming a multilevel stator core 26 using standard electroplating techniques, i.e. deposition, and forming plural stator conductor coils 27 on the substrate (Figs.1&3; c.7, line 56-c.8, line 48; c.11, line 19-c.12, line 12). Electroplating molds using Ni/Fe permalloys form the ferromagnetic core layers (c.8, lines 40-46). Allen's motor and method of manufacture improves mass production of micromotors by using known microfabrication techniques (c.1, lines 32-48; c.4, lines 28-32).

It would have been obvious to one having ordinary skill at the time of the invention to modify Boon's actuator using and provide an electromagnetic actuator manufactured on a micro-scale having a core made from ferromagnetic material deposited on a substrate as in Allen since various microstructure applications demand comparably sized micromotors to drive them and since mass production of such an actuator utilizing known microfabrication techniques would be improved.

Regarding claim 4, nickel-iron permalloy is taught by Allen.

Regarding claim 6, depending upon the position of Boon's armature, the tab 13 will be offset from a center of one of the gaps between the poles 3-5.

Response to Arguments

3. Applicant's arguments with respect to claims 1, 4 and 6 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

4. Claims 2 and 7-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Regarding claim 2, in Boon magnetic core 2 and pivotally mounted member (armature 3) are not substantially in the same plane, but instead the latter is mounted atop the former (Fig1). Regarding claim 7, Boon's armature does not comprise a hinge structure for supporting the pivotably mounted driven member, the hinge formed of a narrow isthmus of material connected to the pivot point, and dimensioned to allow elastic bending angularly about the pivot. The remaining prior art of record does not remedy the deficiencies of Boon and Allen, alone or in combination.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 305-1341 for regular communications and 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.

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Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm

February 7, 2004